

REMARKS

The Examiner objected to the title of the invention, because the Examiner maintains that the title is not sufficiently descriptive. The above amendment to the specification replaces the title with a new title that Applicant submits is sufficiently descriptive.

The Examiner objected to Figure 3, because the Examiner stated that the figure should be labeled prior art. A new set of drawings is included with this response that provides the required legend on Figures 3-5.

The drawings are objected to under 37 CFR 1.83(a), because the Examiner maintains that the drawings do not show the reflective medium claimed in Claims 4 and 9. Applicant disagrees. Such reflective medium is known to the art, and hence, can be represented by a block diagram in the drawings. Figure 1 clearly shows a reflective encoding track in which alternate strips are reflective. In addition, Figure 6 shows strips corresponding to various encoding tracks. Hence, Applicant submits that the drawings do show the reflective strips in sufficient detail.

The Examiner rejected Claims 1-3, 5-8 and 10 under 35 U.S.C. 102(b) as being anticipated by Ohtomo (US 6,093,928). Applicant traverses this rejection with respect to Claims 3 and 8. Applicant submits that the remaining claims as amended above are not anticipated by Ohtomo. The above amendments place the limitations of Claim 3 into Claim 1 and the limitations of Claim 8 into Claim 6.

With respect to Claims 1 and 6, the Examiner looks to code tracks 110 and 120 as the code tracks, code track 120 being the absolute position track. Ohtomo teaches a system in which the absolute position track consists of markers that are separated by blank spaces. The system taught in Ohtomo encodes the absolute position of a marker in that track by providing a unique distance between that marker and the markers on each side of the marker in question. As long as the encoding wheel moves in a single direction between absolute encoding markers, the device provides the absolute position of the encoding disk relative to the reference mark by counting the number of markers on track 110 that have been traversed. The Ohtomo system determines the direction of travel from the sequence of absolute positions that are detected by the controller, i.e., from the read head corresponding to track

120, not track 110. This system assumes that the code wheel turns in the same direction between each pair of absolute encoding marks.

The present invention as claimed in Claim 1 and 6 as amended above, i.e., the previously filed Claims 3 and 8, respectively, determines the direction of travel from the incremental code track, not the absolute code track. This allows the direction of travel to be correctly ascertained even in the case in which the direction changes between two absolute positions that are encoded in the absolute code track. This provides a substantial improvement over the system taught in Ohtomo, and hence, the present invention as claimed in Claims 1 and 6, and the claims dependent therefrom are neither anticipated by, or obvious in view of Ohtomo.

With reference to Claims 2 and 7, as amended above, Ohtomo teaches a scheme in which the distance between each pair of markers on the code wheel is different and unique to that pair of markers. The markers are not equally spaced. As noted above, the ability of the Ohtomo system to detect an error depends on measuring the number of counts in the counter corresponding to track 110 that occur between detecting markers on track 120. Since the track 120 distances vary around the absolute encoding track, the accuracy of the position detecting mechanisms also varies with position. Such position dependent error rates are to be avoided. Hence, there are additional grounds for allowing Claims 2 and 7.

With reference to Claims 5 and 10, the Examiner maintains that track 110 of Ohtomo comprises a state track that corresponds to each absolute position mark. The “state value” identified by the Examiner is the same as the absolute position value. The purpose of outputting a state value is to provide a mapping of the absolute position to some other set of values that can be used directly by an apparatus connected to the encoder. Furthermore, the state values corresponding to two absolute position values could be the same. For example, a washing machine could output a state value that causes the contents of the washer to be emptied at a number of different points in the cycle that are stored on an encoding wheel. The state value at each of these absolute positions would be the same, i.e., a binary value with bits set for the particular valves that are to be opened. The above amendments to Claims 5 and 10 emphasize this difference between the Examiner’s interpretation of Ohtomo and the present invention.

The Examiner rejected Claims 4 and 9 under 35 U.S.C. 103(a) as being unpatentable over Ohtomo in view of Bouldin (US 4,463,089). Applicant traverses this rejection. "The mere fact that a reference could be modified to produce the patented invention would not make the modification obvious unless it is suggested by the prior art." (*Libbey-Owens-Ford v. BOC Group*, 4 USPQ 2d 1097, 1103). "When the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the reference" (*In re Rijckaert*, 28 USPQ2d, 1955, 1957).

In making this rejection, the Examiner admits that Ohtomo does not disclose a code strip carrier comprising a reflective medium having a reflectivity that is altered by exposing said medium to light of an intensity greater than a predetermined intensity. The Examiner looks to Bouldin for the teachings of a disk having these properties. The Examiner maintains that it would have been obvious to one skilled in the art to provide the reflective laser recording medium of Bouldin to the device of Ohtomo for the purpose of achieving high resolution optical data storage.

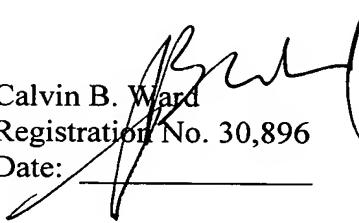
First, the device taught in Ohtomo is a transmissive system, not a reflective system. The embodiment taught in Ohtomo utilizes a system in which the light source is on one side of the disk and the corresponding detector is on the other side of the disk.

Second, the Examiner has not pointed to any suggestion in the art that achieving high-resolution optical data storage is relevant to the device taught in Ohtomo. The Examiner has the burden of providing a suggestion that would cause someone of ordinary skill to use the disk of Bouldin for the encoding disk of Ohtomo. The Examiner has not pointed to any suggestion in Bouldin that a laser-recording disk could be configured to be an encoding disk. Similarly, the Examiner has not pointed to any suggestion in Ohtomo that a disk for use in that apparatus could be constructed using optical data storage techniques. The mere fact that all of the elements of a claim are known to the prior art is not sufficient to sustain a rejection under 35 U.S.C. 103. Hence, Applicant submits that the Examiner has not made a *primis facia* case for obviousness with respect to Claims 4 and 9.

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Respectfully Submitted,

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